



UNITED STATES DEPARTMENT OF COMMERCE  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/485,956 06/16/00 ERICK

J 10683/402

PM82/0908

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EXAMINER

TRAN, D

ART UNIT

PAPER NUMBER

3661

DATE MAILED:

09/08/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

## Office Action Summary

Application No.  
09/485,956

Applicant(s)

ERICK

Examiner

DALENA TRAN

Group Art Unit  
3661 Responsive to communication(s) filed on Feb 18, 2000 This action is FINAL. Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle 1035 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire THREE month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

### Disposition of Claim

Claim(s) 1-22 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1-22 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 5 and 7

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## **DETAILED ACTION**

### **Notice to Applicants**

1. This application has been examined. Claims 1-22 are pending.
2. The prior art submitted on May 16, 2000 and June 16, 2000 have been considered.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, as understood by examiner, are rejected under 35 U.S.C. 103(a) as being unpatentable over Welk (5,699,986) in view of Michalek (5,620,155).

As per claim 1, Welk disclose a train collision avoidance system, comprising: a processor programmed to use GPS data and train grade crossing data to determine if the vehicle is within a predefine distance from a grade crossing and provide a sensory signal (see columns 5-6, lines 1-3). Welk does not clearly mention to receive signal a vehicle location data that identifies a location of a vehicle to determine if the vehicle is approaching the railroad crossing. However, Michalek mention that (see columns 4-5, lines 61-2). Also, Michalek mention storing train grade crossing data (see column 4, lines 9-13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Welk by mention to receive

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signal a vehicle location data that identifies a location of a vehicle to determine if the vehicle is approaching the railroad crossing to avoid the collision.

Also as per claims 2 and 3, Michalek discloses data base stores direction data that identifies a direction of a road that intersects a railroad track and processor receive vehicle direction data and compare with the direction data in data base to provide a sensory indication (see column 8, lines 1-23; and columns 9-10, lines 57-38).

5. Claims 4-6,9,11-13,15, and 21, as understood by examiner, are rejected under 35 U.S.C.103(a) as being unpatentable over Welk (5,699,986) and Michalek (5,620,155) as applied to claim 1 above, and further in view of Shirkey et al. (5,554,982) and Hopkins (3,758,775).

As per claims 11 and 13, Welk discloses a processor programmed to use GPS data and train grade crossing data to determine if the vehicle is within a predefine distance from a grade crossing and provide a sensory signal (see columns 5-6, lines 1-3). Michalek mention to receive signal a vehicle location data that identifies a location of a vehicle to determine if the vehicle is approaching the railroad crossing (see columns 4-5, lines 61-2), and storing train grade crossing data (see column 4, lines 9-13). Welk and Michalek do not clearly mention detector for detecting geographical location and heading of the vehicle. However, Shirkey et al. mention that (see column 2, lines 44-53, and lines 63-67). Also, Hopkins discloses detector for detecting a proximity of a train near the vehicle (see column 3, lines 55-62; and column 4, lines 6-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to

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modify the teach of Welk and Michalek by mention detecting geographical location and heading of the vehicle to accuracy determine the potential of collision and generate warning signal.

As per claim 12, Welk discloses GPS receiver to provide latitude and longitude parameters signals (see columns 3-4, lines 49-10).

As per claim 15, Welk discloses sensory indication comprises a warning, and processor is programmed to provided an alert sensory indication (see the abstract; and columns 6-7, lines 4-2).

As per claims 4,5, and 21, Welk and Michalek do not clearly mention data base stored direction data of at least one road that intersect a railroad track. However, Hopkins discloses that (see column 5, lines 28-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Welk and Michalek by mention direction data of at least one road that intersect a railroad track is stored to protect collision of a plurality of highway-railroad crossings.

As per claim 6, Shirkey et al. mention that processor provide a radius of protection around the vehicle by predefined distance (see columns 2-3, lines 44-15).

Also as per claim 9, Shirkey et al. mention direction data comprises a range of compass degrees (see column 3, lines 17-61; and column 4, lines 30-58).

6. Claims 7-8, and 17-20, as understood by examiner, are rejected under 35 U.S.C.103(a) as being unpatentable over Welk (5,699,986), Shirkey et al.(5,554,982), and Hopkins (3,758,775) as applied to claims 1 and 11 above, and further in view of Lane et al. (5,739,768).

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As per claims 7,8,17, and 18, Welk, Shirkey et al., and Hopkins do not mention a process of changing a respective least significant bit of detected parameters. However, Lane et al. discloses that (see column 5, lines 3-18; column 6, lines 24-47; and column 7, lines 5-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Welk , Shirkey et al., and Hopkins by mention changing a respective least significant bit of detected parameters to accuracy determine the location of the vehicle.

As per claims 19 and 20, Welk discloses latitude and longitude parameters as a function of a speed of the vehicle (see column 4, lines 3-60).

7. Claims 10,14, and 16, as understood by examiner, are rejected under 35 U.S.C.103(a) as being unpatentable over Welk (5,699,986), Shirkey et al.(5,554,982), and Hopkins (3,758,775) as applied to claims 1 and 11 above, and further in view of Michalek (5,620,155).

As per claims 10 and 14, Welk, and Shirkey et al. do not clearly mention to change predefined distance as a function of the vehicle speed data. However, Michalek mention a program to receive vehicle speed data and to change predefined distance as a function of the vehicle speed data (see column 6, lines 15-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Welk , Shirkey et al., and Hopkins by mention to change predefined distance as a function of the vehicle speed data to detect the direction travel of vehicle.

Also as per claim 16, Michalek mention an audible indication provided only for a predefined period of time and then is extinguished (see column 8, lines 48-65).

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Claim 22 is method claim corresponding to system claims 1 and 11 above. Therefore, it is rejected for the same rationales set forth as above.

**Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

. Ferrari et al. (4,942,395)

. Tilleman (5,680,120)

. Cooper (5,786,750)

. Korver et al. (5,986,547)

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Dalena Tran, whose telephone number is (703) 308-8223. The examiner can normally be reached on Monday-Friday from 7:00 AM-4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Cuchlinski, can be reached on (703) 308-3873.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

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**or faxed to:**

(703) 305-7687, (for informal or draft communications, please label  
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park V, 2451 Crystal Drive, Arlington, VA., Seventh Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1113.



WILLIAM A. CUCHLINSKI, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600

/dt  
September 05, 2000